DOCUMENT RESUME

ED 144 397 FL 008 901

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TITLE	Reading in a Second Language. Occasional Papers on Linguistics, No. 1.
INSTITUTION	Southern Illinois Univ., Carbondale. Dept. of Linguistics.
PUB DATE	Apr 77
NOTE	14p.; Proceedings of the International Conference on Frontiers in Language Proficiency and Dominance Testing (1st, Southern Illinois University, Carbondale, Illinois, April 21-23, 1977)
EDRS PRICE	MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS	Bilingualism; *Bilingual Students; Content Reading; Decoding (Reading); English (Second Language); *Error Analysis (Language); Interference (Language Learning); Language Instruction; *Oral Reading; Pronunciation; Reading Ability; Reading Instruction; *Reading Research; Reading Skills; *Recall (Psychological); *Second Language Learning; Spanish Speaking

ABSTRACT

This study examined reading in a second language among 12 fourth and fifth grade Mexican American bilinguals. The children's oral reading and recall was taped. Oral reading errors were categorized and tallied. The reading performance was evaluated by a system-oriented analysis of recall and of reading errors where "error" was defined as any deviation from the text. Errors were tallied into seven categories: corrections, repetitions, omissions, additions, mispronunciations, base substitutions, and morphological substitutions. In the first four categories, the bilingual reader made fewer errors than the monolingual reader. These results suggest that the bilingual reader pays closer attention to text, relying less on prediction about the upcoming content. The bilingual group made more substitution errors, which suggest first-language interference. The recall of narrative content was measured by the ratio "propositions in recall/propositions in text." Among bilingual readers there was significant negative correlation between omission and recall and substitution errors and recall, which was not found among monolingual readers. The decoding mistakes and mispronunciation of the bilingual readers frequently indicated a systematic relationship to Spanish phonology or orthography. Major emphasis in reading instruction should be on English grapheme-phoneme correspondence. (CFM)

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READING IN A SECOND LANGUAGE

Laila Fiege-Kollmann

OBJECTIVE

Oral reading and recall performance among bilingual children reading second language text was investigated to determine the extent of first language interference on reading and the possible influence of that interference on recall.

BACKGROUND

According to some reading theories (for example, Goodman, 1968, 1972) proficient reading is based on sampling and searching information in text and on actively interpreting its meaning. The reader whose skills extend beyond simple decoding predicts upcoming content based on previously processed content combined with expectations that depend on his past conceptual and linguistic knowledge. During reading, the reader may make a wrong prediction, and as a result, interpretive errors may occur. This can be observed in oral reading.

A bilingual speaker whose second language is acquired later than the first probably uses a different reading strategy when reading in his second language. He may not master his second language to such an extent that he can depend on his linguistic and conceptual knowledge of that language as extensively as a monolingual can do. The bilingual reader may have to continue to rely on his decoding skills and on the information present in the text, rather than on his general knowledge about the second language, even after mastering its grapheme-phoneme system.

By the time the monolingual reader can read fluently, say in third grade, his knowledge about the grammatical structure of his language is extensive and his network of concepts is quite large. (See, for example, Palermo and Molfese, 1972.) The bilingual reader may have less complete knowledge about his second language. During reading, he not only decodes and interprets the text to himself, but he may also learn new concepts or new names for concepts for which he may only have a first-language label. Furthermore, his second language may be in a form of dialect (e.g., Saville, 1972) while the text is usually written according to some literary standards and writing conventions. Thus while reading, the bilingual reader learns also the grammatical principles of the written forms of his second language without being overtly taught.

If the reader uses dialect forms while speaking in his second language, he may substitute dialect speech forms for those forms in the text which he understands, but does not use in his speech. (E.g., the use of past tense in text is understood, but not always realized in the oral output.) The use of some dialect forms by some readers

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should indicate that the reader is comfortable reading the text; he understands it well enough to use those linguistic forms with which he is most familiar. In contrast, some readers may need to translate parts of the text into more common speech forms in order to understand it.

First language or second language dialect influence is often observable when bilingual readers read aloud. If the reader makes reading errors, these frequently can indicate a systematic relationship with the first language of the reader. For example, a sound which is phonemic in the target language may be nonphonemic in the first language. Hence the reader may not pay attention to some phonemic distinctions and may mispronounce when outputting text. The mispronunciation can result in a different word in the output (e.g, witch is read as [wɪš] or in a nonsense word (e.g., met is read as [mɛ̄t]).

Similarly, the phonological constraints of the reader's first language may make it difficult to say some of the sounds in the second language, and this would also be reflected in the reading. For instance, the final consonant cluster in the word jumped (/ǰəmpt/) might be difficult to pronounce for a reader in whose first language such consonant clusters do not occur. It is also possible that the reader is familiar with the orthography of his first language. In such a case, he may give some letters or letter groups the phonetic values of the letters in his first language. For example, try is read as [trI], cf., tree, and by as [bI], cf., be, bee.

These kinds of reading errors affect the listener's comprehension of the reader's output. Whether they also affect the reader's own comprehension is an open question, to be explored in the present study.

In the present study, reading in a second language is examined among Mexican American (MA) bilinguals. It is assumed that in reading English, Spanish language interference is observable. It is also assumed that the readers use a decoding, rather than prediction, strategy for reading English. The relationship between first language interference and recall is discussed.

DATA SOURCE

The population sample consisted of 12 Mexican American bilinguals (MA). The children attended a fourth and fifth grade combination class and, according to their teachers, they were average readers at third grade level. All were from Spanish-speaking homes; some were born in this country, and some had arrived from Mexico as recently as two years before the study took place. The average stay at school was 2.8 years, ranging from 2 to 6 years. The preliminary selection of participants was made by the teaching team which consisted of three monolingual teachers and one bilingual teacher. The final selection depended on interviews with the children. In addition, a speech sample of each participant was analyzed and compared with a checklist of

features known to occur in the (MA) dialect (cf. Troike, 1972; Davis, 1972). Occasionally, reference is made to monolingual readers. This group consisted of 14 average 3rd grade readers having socio-economic backgrounds that were similar to those of the bilingual group.

The stimulus material consisted of three narratives with a combined length of 1226 words. The readability level of the text was second grade (Botel and Granowsky, 1972; Fry, 1968). The children's oral reading and recall was taped. Oral reading errors were noted during reading and later checked against the transcribed recordings before they were categorized and tallied. The text and the children's recall were analyzed into sentence propositions expressed in case grammar terms (Kintsch, 1972; Cook, 1973). Percent recall is the ratio between propositions in recall and propositions in text.

The reading performance was evaluated by a system-oriented analysis of recall and of reading errors where "error" was defined as any deviation from text.

For the reading error analysis, the errors were tallied into seven error categories: corrections, repetitions, omissions, additions, mispronunciations, base substitutions, and morphological substitutions. (See Table 1.) For the quantitative analysis, the long-term value of number of errors per hundred words of text was calculated. The qualitative analysis was based on linguistic analysis of the text and the reader's responses.

Correction:	Incorrect response is corrected (e.g., horse is read as house and then corrected)
Repetition:	Correct response is repeated (e.g., a phrase is read twice)
Omission:	A word is omitted from text (e.g., the red bike is read as the bike)
Addition:	A word is added to text (e.g., he runs is read as he runs fast)
Mispronunciation:	A word element is mispronounced, but not to such an extent that the word is changed into another, recognizable word (e.g., gladly is read as [glɛdlɪ])
Base substitution:	A word is substituted by another (e.g., came is read as ran)
Morphological substitution:	An inflectional or derivative affix is added, deleted or substituted by another affix (e.g., jumping is read as jumped, came as come, turn as return)

Table 1: Error Categories and their Definitions

RESULTS

Two graphs (Figures 1 and 2) are presented to show the cumulative distribution of the relative long-term number of error types per 100 words of text. The distribution for corrections, repetions, additions, and omissions is shown in Figure 1. Note that the average reader made about 2.6 repetitions, 1.4 corrections, 1 omission, and 0.20 additions per 100 words of text. In comparison, the average monolingual reader of same text made about 3.4 repetitions, 1.8 corrections, 1.6 omissions, and 0.35 additions per 100 words of text. In these error categories there was a tendency for the bilingual reader to make fewer errors than monolingual readers made. The results are interpreted as an indication that the bilingual reader pays closer attention to text, relying less on prediction about the upcoming content.

The distribution of substitutions per 100 words of text is presented in Figure 2. The substitutions are categorized as base and morphological substitutions and mispronunciations (see table 1). The cumulative distribution curves show that the average bilingual reader made about 2 mispronunciations, 4.2 base substitutions, and 2.1 morphological substitutions per 100 words of text. In these error categories, the bilingual reader made more errors than the monolingual reader of the same text (the respective figures are 0.2 mispronunciations, 1.7 base substitutions, and 0.4 morphological substitutions for the same text). It is assumed that the larger number of substitution errors in the bilingual group results from first language interference. This assumption is further confirmed by the results of a more detailed analysis of substitution errors to be discussed under the next subheading. (See also Fiege-Kollmann, 1976.)

The recall of narrative content was measured by the ratio $\frac{\text{propositions in recall}}{\text{propositions in text}}$. Correlation coefficients were calculated between reading errors and recall. These are shown in Figure 3. As the results indicate, there was significant negative correlation between omission and recall, and substitution errors and recall. The more errors in any of these error categories the read had, the less recall. This relationship is illuminated in Figure 4 where recall and base substitutions for individual readers are plotted out (Fiege-Kollmann, 1977). The curves are rugged, but distinct tendencies of the inverse relationship between recall and base substitution errors are discernable. No such relation was found between recall and these error types among monolingual readers.

It has been indicated that the bilingual readers frequently mispronounced words to such an extent that they became different English words in the output. It is unclear, however, whether the misread word was understood as the word the reader heard himself say, or whether he understood it correctly, despite the mispronunciation. The negative correlation between recall and base substitutions, and recall and mispronunciations can be regarded as indirect evidence that the mispronounced word was understood as the word the reader heard himself say. Since the outputted word was

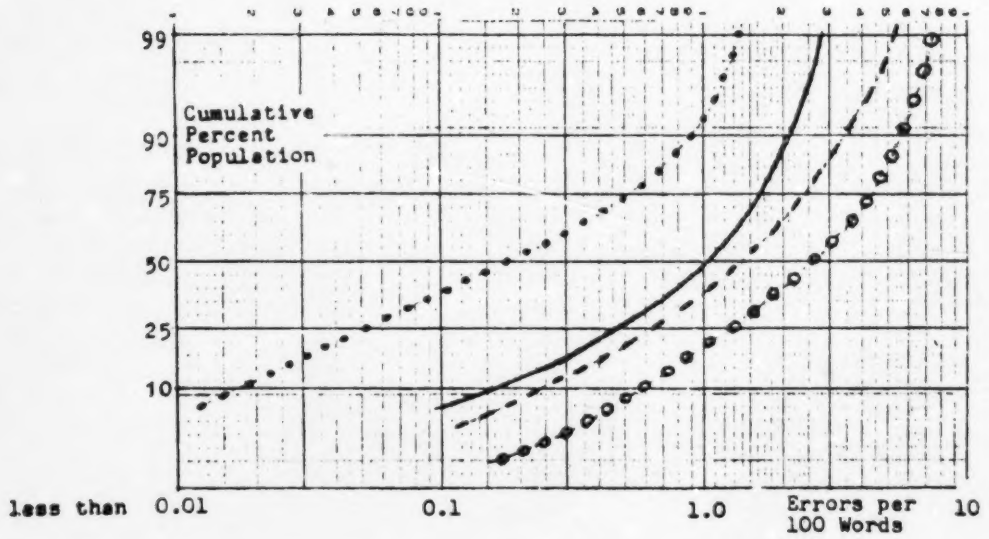

Fig. 1: Cumulative Distributions of Corrections (— — —), Repetitions (o o o o), Additions (• • • •), Omissions (———) in Reading

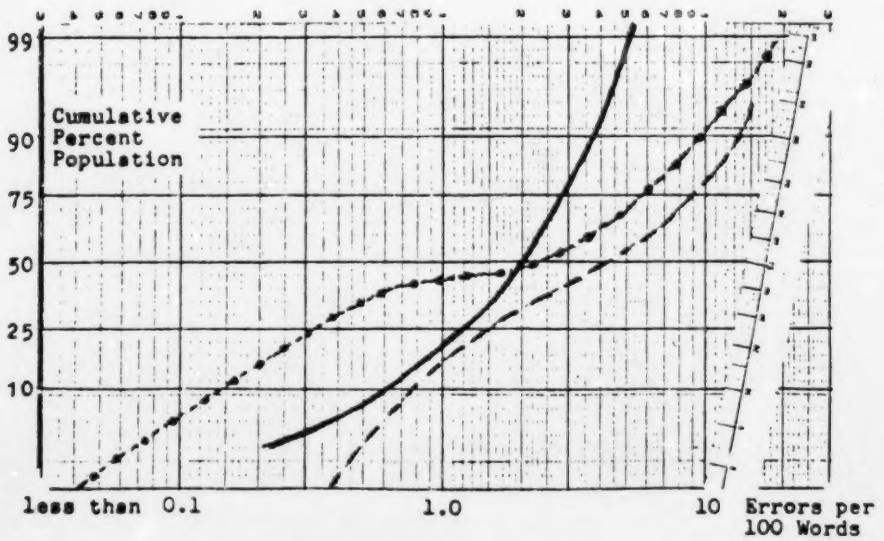

Fig. 2: Cumulative Distributions of Substitutions

Pronunciation (•-•-•-•), Morphological Errors (———), Base Errors (— — —).

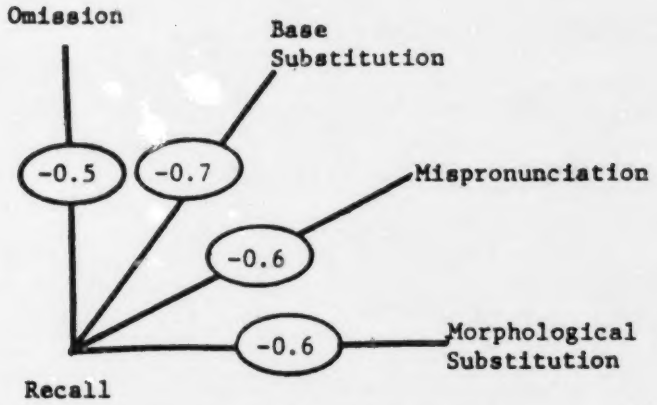

Fig. 3. Pearson Product Moment Correlation among Recall and Error Types

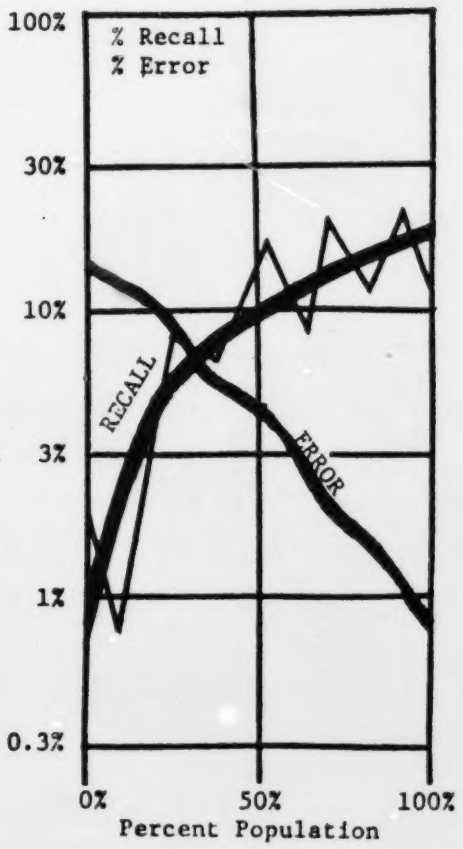

Fig. 4. Comparison of Base Substitution Performance vs. Recall

often unsuitable in the general context (e.g., by read as be) the resulting incongruence affected recall. Similarly, if the output resulted in an unknown/nonsense word, this would have an effect on recall. In contrast, the monolingual reader made fewer substitution errors, thus recall was not affected. Furthermore, the monolingual reader seemed to make mental corrections as more information became available during the course of reading.

When the bilingual omitted words, the coherence of the narrative suffered, and this in turn affected recall. Despite more frequent omissions, the monolingual reader seemed more capable of mentally filling in the gaps.

First Language Interference in Substitution Errors

The relationship between the substitution types is close, as indicated by strong positive correlation coefficients (Figure 5).

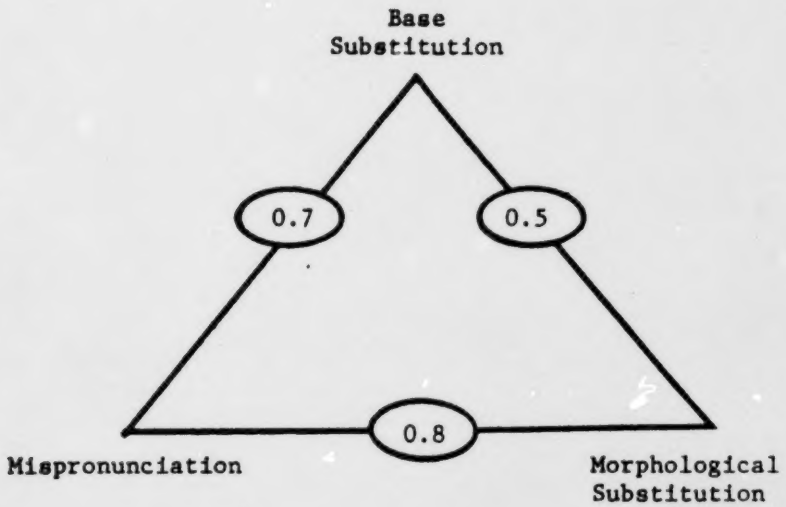

Fig. 5. Pearson Product Moment Correlation among Substitution Error Types

Some base substitutions resulted from an uncertainty about how to pronounce a word. The reader made several attempts to say the target word. As soon as his attempts resulted in some word that was recognizable to him, he was satisfied, and continued reading without considering how well that word fitted into the general context. In other instances, the reader mispronounced target words to such an extent that they became different words in the output. As a consequence, there is a strong correlation between base substitutions and mispronunciations, and the somewhat arbitrary division between these error types is disregarded. The general conclusion can be drawn that the bilingual reader who made morphological substitutions, also made other types of substitution errors in reading.

The decoding mistakes and mispronunciations of the bilingual readers frequently indicated a systematic relationship to Spanish phonology or orthography. Table 2 shows the extent of vowel and consonant mispronunciations among readers. About 3/4 of the readers mispronounced some vowels, and all readers mispronounced one or more consonants.

Reader (Code names)	Mispro-nunciation of vowel Symbols	Mispronunciation of Consonant Symbols								
		Initial or final	Initial						Final	
		(t)ch/sh	j	y	h	qu	th	v	f	ng/nk
Sara									x	
Mark										x
Dana		x								
Tim	x							x		
Ron	x	x					x	x		
Joe	x	x	x			x			x	
Nat	x	x	x			x		x	x	x
Pat	x	x	x	x	x	x		x		x
Sam	x	x	x	x			x		x	
Winn	x	x	x	x			x	x	x	x
Rich	x	x	x	x	x		x	x	x	x
Rob	x	x	x	x	x		x	x	x	x

Table 2. Mispronunciations of Letters among MA Readers

As Table 3 indicates, Spanish influence can be observed in the pronunciation of simple vowels, vowel digraphs, and VC-e words. Most prominent was the pronunciation of word final y as /ɪ/ or /ǐ/. This may indicate knowledge of Spanish orthography in those instances where /ǐ/ is represented by the letter y. The reader may also generalize from the pronunciation of -y in words having more than one syllable (e.g., pretty, candy, early). Monosyllabic words such as by, try, sky, my, were often read as [bɪ] cf., be; [trɪ] cf., tree; [skɪ] cf., ski, and [mɪ] cf., me.

Another frequently mispronounced symbol was the letter e.

In Spanish, /e/ is similar to the English sound in met when it is in a closed syllable (e.g., venta). However, in an open syllable (e.g., vena) it is generally pronounced higher, as high as in English wait, but without the accompanying glide of the English sound (Bowen and Stockwell, 1969). The difference in Spanish is nonphonemic, and the reader may not realize the significance vowel height has in English. This may account for some of the mispronunciations concerning the single letter e.

Letters of the Alphabet	Examples
a	sat → [sat]; back → [bak]; trap → [trap] all → [al]; swam → [svam]; was → [vas]
o	go → [gɔ]; stopping → [stupɪn]
u	but → [but]; lucky → [lukɪ]; must → [must]; running → [runɪn]
i	find → [fɪnd]
y	by → [bɪ]; may → [maɪ], [mɪ]; way → [vaɪ], [vɪ] sky → [skɪ]
e	met → [mɛ̄t]; Beth → [bɪθ]; help → [hɪlp]
ea	seat → [sɛt], [sɪt]; eat → [ɛt], [ɛt;], [ɪt]; sea → [sɛə], [sɛ]; hear → [nɛ̄r]
ee	needs → [nɛdz]
oo	broom → [brɔm], [braum]; moon → [mun], [mɔn]
ai	said → [sɛd], [sɪd]
aCe	gave → [gɛv]; same → [sæm], [sɛm]; place → [plɪs]
oCe	broke → [brɔk]; stole → [stul]
iCe	inside → [ɪnsɛd], [ɪnsɪd]; time → [tɪm], [tɛm], [tam]; mice → [mɪs], [mɛs], [mɛs]
eCe	Steve → [stɛb], [stɛv], [stav]

Table 3. Letters of the Alphabet Symbolizing Vowels and Examples of their Pronunciations among some MA readers

In English, the letter e is common in digraphs (ee, ea) with varied pronunciations. The variation increases, if the letter or digraph is followed by -r-. Consider, for example, bet, beet, bead, her, learn, near, here. The many mispronunciations concerning the letter or letter combinations indicates uncertainty in how to pronounce them. In general, when two letters represent a single vowel sound, some readers tended to mispronounce. The mispronunciation was dependent on the letter which was considered to be the dominant one, and hence the major influence on the sound.

The variability in the pronunciation of the digraph ea can be illustrated with the word seat. If the reader does not hear the difference between /ɪ/ and /i/ (because the sounds are nonphonemic in his language), seat may become [sɪt]. If the reader pronounces both letters, the result is [sɛat]. If the reader focuses on the letter e, he interprets the word as [sɛt] (cf., the past tense of read). If he concentrates on the a, he interprets [sat] which may become [sæt] in the output.

Less tense, shorter vowels frequently replaced the vowels represented by the VCe-pattern in English (e.g., gave → [gɛv]). The letter a was occasionally pronounced as /ɛ/, e.g., gladly → [glɛdlɪ], sad → [sɛd]. This may be an attempt at the /æ/ phoneme, however pronounced higher and more fronted, possible because of the influence of the dental consonant.

Spanish influence was noticeable in some initial consonants, as Table 4 indicates. Spanish-like pronunciation was used by several readers for the initial consonants represented by y, j, h and qu which represent different phonetic values in Spanish.

Initial Consonant	Examples
y	yell → [dyɛl]; yes → [dyɛs]; you → [dyu]
j	just → [yust], [yast], [hast]; jar → [yar], [har], [dyar]; jump → [yamp], [dyamp]
h	him → [ɪm]; his → [ɪs]
qu	quickly → [kɪklɪ]
sh	shell → [tš ɛl]; she → [tš ɪ]

Table 4. Examples of Spanish Influenced Initial Consonants

The letters sh were pronounced as [tš] and the letters (t)ch as [š] by most bilingual readers (Table 5). In Spanish, these sounds are nonphonemic, and this influences the interchange of the two sounds.

Other final consonants influenced by Spanish are also listed in Table 5. There was uncertainty about how to pronounce the digraph ng; the final letter was either ignored or exaggerated. This occurred also in the -ing form of the verbs.

Final Consonant	Examples
v	have → [hæb]
f	of → [of]
ng	ring → [rɪn], [rɪŋk], [rɪŋg], [rɪnk]
tch	catch [kæš]

Table 5. Spanish Influenced Final Consonants and Examples

As Figure 2 indicated, there were frequent morphological substitutions. Seventy-nine percent of the morphological substitutions occurred in verbs, 15% occurred in nouns, and 6% in other function classes. The distribution of types of verb affix substitutions is given in Table 6 (adapted from Fiege-Kollmann, 1976).

Affix Change in Verbs		Example
Vowel change	40%	gave → give
Ved → V	44%	played → play
Ved → Vin, Ving	11%	jumped → jumping
Other	5%	plays → play; playing → play
Total	100%	

Table 6. Distribution of Types of Verb Affix Substitutions

Everytime a past tense of a vowel changing verb occurred in the text, three to five readers used base forms (e.g., came, kept, broke, gave were read in their base forms). Simple base forms substituted for the regular past tense forms about 3.3 times per single instance of verb. The latter change seemed to be phonologically conditioned at times, for example, final consonant clusters (e.g., jumped [ʤəmpt]) were simplified. But in most cases the change did not appear to be phonological, instead, it seemed that the concept name was more familiar to the reader when expressed in its base form. The substitution was frequently made during fluent, smooth reading, and in some cases the readers read the forms correctly at first, then traced back and changed them.

The third major change in the verb substitutions was the Ved → Vin, Ving change. This substitution occurred 3.4 times per single instance. (For example, the phrase Beth screamed and jumped was read as Beth screamin and jumpin.) The verbs where the change occurred were action verbs or verbs expressing strong emotion. It might be that the reader associated them with the progressive form or that he had heard them more frequently in that form. The remaining verb affix changes were single instances of varied substitutions.

A common mispronunciation occurred in the regular past tense form of verbs; the tense marker -ed was pronounced as [əd] or [ɪd], not only after dentals, but also after other consonants (e.g., helped → [hɛlpəd]; yelled → [yɛlɪd]; packed → [pækəd]; asked → [æskəd]. The pronunciation might be easier for a reader whose first language does not have similar consonant clusters. Some readers may want to pronounce the schwa as it is pronounced when the past tense morpheme is attached to words that end in d or t (e.g., faded, parted). It may also be, that the reader follows the general

pronunciation rule for two-syllable words and pronounces the unstressed schwa as in pocket, teacher.

The distribution of noun affix substitutions is given in Table 7. In the noun affix changes, the Npos → N change occurred mainly after voiceless consonants. The Npl → N change was made by different readers on single instances of words, and no phonological pattern was discerned. Other noun affix changes were sporadic.

Affix Change in Nouns		Example
Npos → N	32%	witch's → witch
Npl → N	53%	rocks → rock
Other	15%	rock → rocks; dust → dusty
Total	100%	

Table 7. Distribution of Types of Noun Affix Substitutions

Other types of affix changes were uncommon, except for pronouns where changes in pronoun forms occurred occasionally, e.g., him → his; his → him; hers → her. Thus the concept was retained, but the form varied.

As Tables 2-5 indicated, the mispronunciations made by several bilingual readers did not occur at random; instead they could be related to Spanish language influence, often coupled with the reader's knowledge of Spanish orthography. Similarly, some morphological errors could be attributed to phonological conditions existing in Spanish or to uncertainty about the pronunciation of verb affixes, but in most instances the readers seemed to prefer the base form of an inflected verb or noun and hence substituted it for the inflected one.

CONCLUDING COMMENTS

As a result of the present study, it can be stated that typical reading errors of bilingual readers could result from:

a) not knowing English grapheme-phoneme correspondences (e.g., seat was read as sit, set, sat)

b) giving Spanish phonetic values to English vowels and consonants (e.g., sat read as [sat]).

c) knowledge of Spanish orthography/phonology (e.g., quickly → [kɪklɪ]; him → [ɪm]).

d) outputting the inflected forms of common verbs and nouns in their base forms (e.g., came → come; rocks → rock).

Of these four error types, the first one is the most critical, and it is here that the major emphasis of instruction should be centered. In teaching decoding, foreign language teaching methods, including contrastive observations and error analysis could be combined with the more common methods of teaching. Concept learning might also improve decoding. The influence of Spanish orthography/phonology probably will diminish on its own accord as a result of increased exposure to reading in English. The fourth error type indicates that the reader is familiar with the concept in question, but that the inflectional system in reading is not yet stabilized. This type of an error should also decrease automatically through reading practice.

In evaluating reading in a second language, it is also important to recognize "good" reading errors that can indicate facility with the second language in general and with the reading text. Such cues are, for example, the following:

a) additions to text, even if the results are negative* (for example, the girl → the little girl; she went → she wanted to go).

b) omissions that do not result from not knowing how to read a word but rather from rapid reading or other interpretative changes in text (for example, the rich king → the king).

c) semantically equivalent substitutions (for example, he started to run → he started running).

d) corrections and repetitions

e) errors that result from predictions about upcoming text (for example, I want the... → I want to...)

It should be remembered that most children are of normal intelligence, eager to learn, and are capable of learning to read in a second language. Thus reading should not hinder, but should enhance the growth of both of the reader's languages. The goal is not to make a bilingual individual into a monolingual reader, but to make his proficiency grow in both languages, be it in written or spoken form.

*For both monolingual and bilingual readers, additions correlated significantly with recall (Fiege-Kollmann, 1976).